

Rosemount™ 2460 System Hub

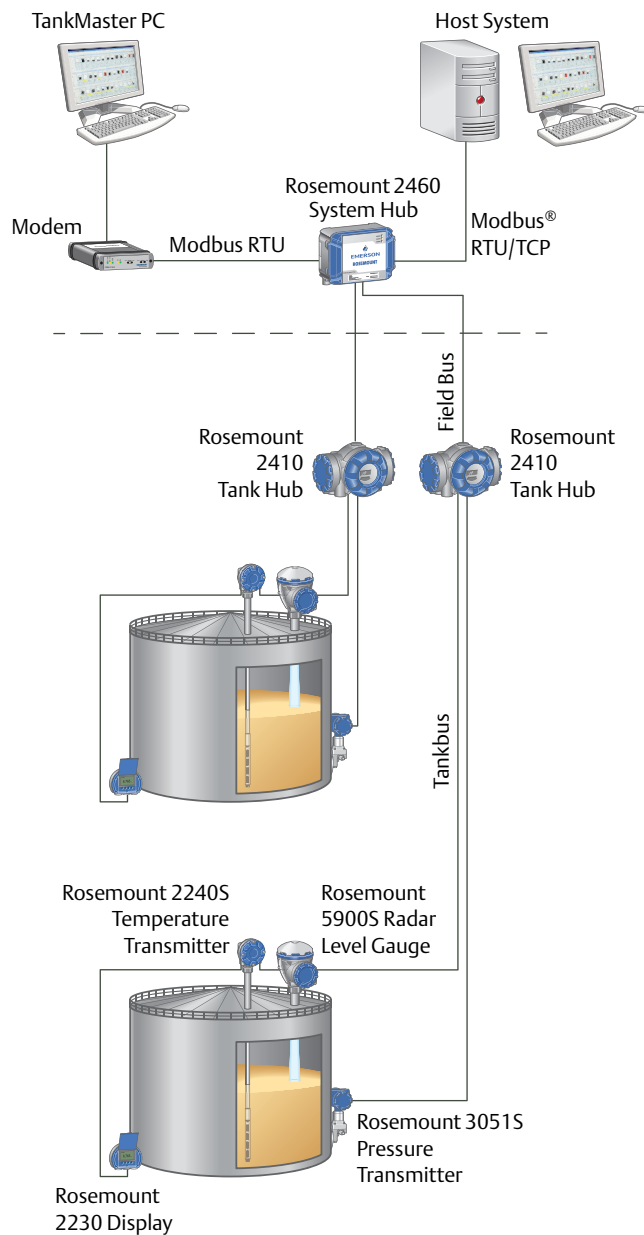
for tank gauging systems



Transfers tank gauging data to TankMaster™, Host and DCS systems

- Ensure fast data update rate
- Serves up to 64 tanks
- Benefit from scalable options for all system sizes
- Get flexible and configurable multiple port connectivity
- Achieve instrument and system redundancy
- Enable other vendor emulation by bringing in data from Enraf® or Whessoe gauges

Efficient update of vital online tank data



The Rosemount 2460 System Hub is a data concentrator that continuously polls and stores data from field devices such as radar level gauges, pressure and temperature devices. Measured and calculated data from one or more tanks is communicated via the Rosemount 2410 Tank Hub to the system hub buffer memory. Whenever a request is received, the system hub can immediately send data from a group of tanks to a TankMaster PC, or a host.

The system hub also supports connection of other tank gauging instruments such as TankRadar™ Pro and TankRadar Rex gauges from Emerson™. In addition it can be used to connect devices from other vendors, such as Honeywell® Enraf and Whessoe.

Configurable multiple port connectivity

The Rosemount 2460 has eight slots for communication interface boards. These boards can be individually configured for communication with hosts or field devices. They can be ordered either for TRL2, RS485, Enraf BPM or Whessoe 0-20 mA/RS485 communication. Two slots can also be configured as RS232.

Modbus TCP communication to host

One of the system hub's three Ethernet ports is used for Modbus TCP connection to host systems. By simply connecting the system hub to the existing LAN network, communication over Ethernet is established:

- Easy access, special converters are not required
- Fast communication
- No need for dedicated cabling

Contents

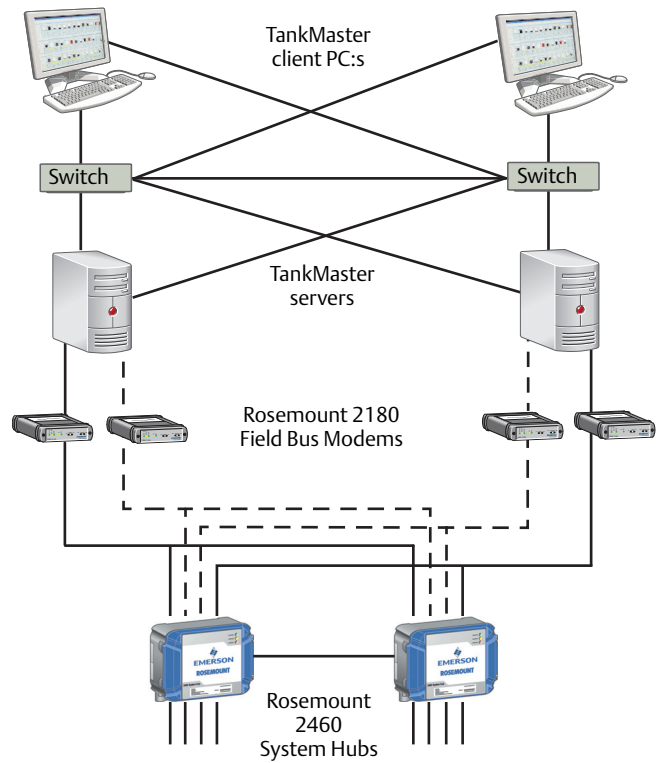
| | | | |
|----------------------------|---|------------------------------|----|
| Ordering Information | 4 | Product Certifications | 12 |
| Specifications | 8 | Dimensional Drawings | 13 |

Improve system reliability with redundancy

The system hub can provide redundancy for critical operations, by using two identical devices.

The primary system hub is active and the other one is in passive mode. If the primary unit stops working properly the secondary unit is activated and a failure message is sent to TankMaster (or a DCS system).

Redundancy can be utilized for some or all equipment in the system, from the control room to the field devices.

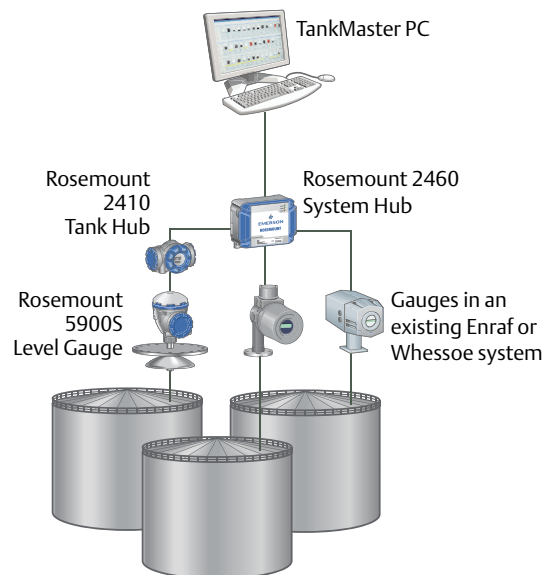


Seamless integration of gauges from other vendors

Replace your old tank management system with Rosemount TankMaster by connecting the system hub to existing Enraf or Whessoe field devices.

Rosemount TankMaster can seamlessly replace an existing inventory management system, still being able to communicate with the field devices in use. This often enables a better update rate than before.

Emulation also enables step-by-step modernization of a tank farm by replacing old field devices with Rosemount 5900 level gauges, temperature devices and one or several tank hubs.



Ordering Information

Table 1. Rosemount 2460 System Hub Ordering Information

| Model | Product description |
|--|---|
| 2460 | System Hub |
| Capacity⁽¹⁾ | |
| 1 | 1-16 tanks |
| 4 | 1-48 tanks |
| 6 | 1-64 tanks |
| Firmware | |
| S | Standard |
| Redundancy/Remote access (Ethernet) | |
| 0 | None |
| R | Redundancy (requires two identical system hubs with redundancy enabled) |
| Modbus mapping | |
| S | Standard |
| Port 1, Field communication (serial port) | |
| R ⁽²⁾ | TRL2 Modbus |
| E ⁽³⁾ | Enraf Bi-phase Mark GPU |
| H | Whessoe WM 550/660 (digital current loop) |
| Y | Whessoe WM 660 (RS485) |
| 4 ⁽⁴⁾ | RS485 Modbus |
| Port 2, Field communication (serial port) | |
| 0 | None |
| R ⁽²⁾ | TRL2 Modbus |
| E ⁽³⁾ | Enraf Bi-phase Mark GPU |
| H | Whessoe WM 550/660 (digital current loop) |
| Y | Whessoe WM 660 (RS485) |
| 4 ⁽⁴⁾ | RS485 Modbus |

Table 1. Rosemount 2460 System Hub Ordering Information

| Port 3, Field communication (serial port) | |
|--|--|
| 0 | None |
| R ⁽²⁾ | TRL2 Modbus |
| E ⁽³⁾ | Enraf Bi-phase Mark GPU |
| H | Whessoe WM 550/660 (digital current loop) |
| Y | Whessoe WM 660 (RS485) |
| 4 ⁽⁴⁾ | RS485 Modbus |
| Port 4, Field communication (serial port) | |
| 0 | None |
| R ⁽²⁾ | TRL2 Modbus |
| E ⁽³⁾ | Enraf Bi-phase Mark GPU |
| H | Whessoe WM 550/660 (digital current loop) |
| Y | Whessoe WM 660 (RS485) |
| 4 ⁽⁴⁾ | RS485 Modbus |
| Port 5, Field or Host communication (serial port) | |
| 00 | None |
| FR ⁽²⁾ | TRL2 Modbus, field communication |
| FE ⁽³⁾ | Enraf Bi-phase Mark GPU, field communication |
| FH | Whessoe WM 550/660 (digital current loop), field communication |
| FY | Whessoe WM 660 (RS485), field communication |
| F4 ⁽⁴⁾ | RS485 Modbus, field communication |
| HR | TRL2 Modbus, host communication |
| H4 | RS485 Modbus, host communication |
| Port 6, Field or Host communication (serial port) | |
| 00 | None |
| FR ⁽²⁾ | TRL2 Modbus, field communication |
| FE ⁽³⁾ | Enraf Bi-phase Mark GPU, field communication |
| FH | Whessoe WM 550/660 (digital current loop), field communication |
| FY | Whessoe WM 660 (RS485), field communication |
| F4 ⁽⁴⁾ | RS485 Modbus, field communication |
| HR | TRL2 Modbus, host communication |
| H4 | RS485 Modbus, host communication |

Table 1. Rosemount 2460 System Hub Ordering Information

| Port 7, Host communication (serial port) | |
|---|---|
| 00 | None |
| TR | TRL2 Modbus communication to TankMaster |
| T2 | RS232 Modbus communication to TankMaster |
| T4 | RS485 Modbus communication to TankMaster |
| HR | TRL2 Modbus communication to host/DCS |
| H2 | RS232 Modbus communication to host/DCS |
| H4 | RS485 Modbus communication to host/DCS |
| Port 8, Host communication (serial port) | |
| TR | TRL2 Modbus communication to TankMaster |
| T2 | RS232 Modbus communication to TankMaster |
| T4 | RS485 Modbus communication to TankMaster |
| OPC Host communication (Ethernet) | |
| 00 | None |
| Modbus TCP Host communication (Ethernet) | |
| 00 | None |
| M1 | 1 Modbus TCP client. Third party Modbus TCP client. |
| M5 | 1-5 Modbus TCP clients. Third party Modbus TCP clients. |
| Power Supply | |
| P | 100-250 VAC 50/60 Hz, 24-48 VDC |
| Custody transfer type approval | |
| R | OIML R85 edition 2008 |
| C | PTB Eich (Germany) |
| N | NMi (The Netherlands) |
| 0 | None |
| Housing | |
| A | Aluminum (polyurethane-covered), IP 65 |
| Cable/Conduit connections | |
| G | Metal cable glands (M20 x1.5 and M25 x1.5), 9 plugs and 11 glands are included (2 pcs M25 and 7 pcs M20 plugs) |
| 1 | NPT adapters ($\frac{1}{2}$ -14 NPT and $\frac{3}{4}$ -14 NPT), 9 plugs and 11 adapters are included (2 pcs M25 and 7 pcs M20 plugs) |
| 2 | Metal plugs (M20 x 1.5 and M25 x1.5), 2 pcs M25 and 9 pcs M20 plugs |
| Extra | |
| 0 | None |

Table 1. Rosemount 2460 System Hub Ordering Information

Options (include with selected model number)

| | |
|---|---|
| ST | Engraved SST tag plate |
| Q1 | Printed copy of certificate of conformance |
| WR3 ⁽⁵⁾ | Extended Warranty: in total 3 years from delivery |
| WR5 ⁽⁵⁾ | Extended Warranty: in total 5 years from delivery |
| Typical model number: 2460 1 S 0 S R R R R FR FR TR TR 00 00 P R A 1 0 WR3 | |

1. Note that each Rosemount 5900S Radar Level Gauge with 2-in-1 functionality corresponds to two tanks.
2. Maximum 8 devices (TankRadar Rex, TankRadar Pro, and TankRadar TRL2 gauges, Rosemount 2410 Tank Hub, and DAU).
3. Maximum 10 devices.
4. Maximum 16 devices.
5. Standard warranty is 18 months from delivery.

Specifications

Communication/Configuration specifications

Number of tanks

Each Rosemount 2460 supports maximum 64 tanks.

The actual number of tanks depends on the electrical interface and field port configuration. For detailed information see [Table 2](#).

Note that each Rosemount 5900S Radar Level Gauge with 2-in-1 functionality corresponds to two tanks.

Number of devices per Rosemount 2460 field port

[Table 2](#) lists maximum number of devices that can be connected to each Rosemount 2460 field port.

Example of devices are Rosemount 2410, Rosemount TankRadar Pro and legacy devices such as Rosemount TankRadar Rex and Rosemount TankRadar TRL2.

Table 2. Number of Devices

| Interface | Maximum number of devices connected to each field port |
|-----------------------|--|
| RS485 | 16 |
| TRL2 | 8 |
| Enraf BPM | 10 |
| Whessoe 0-20 mA/RS485 | N/A |

Number of modem ports

Maximum 8, to be configured for either field or host communication according to model code.

For more information see [Table 3](#) and [Table 4](#).

Number of Ethernet ports

3, for more information, see [Table 5](#).

Number of USB ports

1, for more information, see [Table 5](#).

Number of SD slots

1, for more information, see [Table 5](#).

Hosts

See [Table 3](#) and [Table 4](#).

Enraf emulation⁽¹⁾

Support for data polling of Enraf field devices (with GPU protocol).

Whessoe emulation

Support for data polling of Whessoe field devices.

Protocol:

- WM 550
- WM 660

Electrical interface:

- 0-20 mA digital current loop⁽²⁾
- RS485

Rosemount 2160 emulation

Host protocol, supporting Rosemount 2160 Field Communication Unit Input register mapping. Enables replacement of Rosemount 2160 without need of host re-programming.

1. Requires version 1B0 or higher.

2. External power supply for powering the bus required.

Digital communication protocols

Table 3. Serial Communication Ports (1-8)

| Supported devices | Hosts/Field communication | Protocol | Electrical interface | Baud rate | Port |
|---|---------------------------|------------|----------------------|-----------|--------------------|
| TankMaster Other hosts (DCS, SCADA etc.) | Host communication | Modbus RTU | TRL2 | 4800 | 5-8 |
| | | | RS485 (2 wire) | 150-38400 | 5-8 ⁽¹⁾ |
| | | | RS485 (4 wire) | | 7-8 ⁽¹⁾ |
| | | | RS232 | | 7-8 |
| Rosemount 2410, TankRadar Rex gauges (with SDAU), IDAU, TankRadar Pro and TankRadar TRL2 gauges | Field communication | Modbus RTU | TRL2 | 4800 | 1-6 |
| Rosemount 2410 | | | RS485 (2 wire) | 150-38400 | |
| Enraf 811, 813, 854, 873, 877, 894, 970, 971 and TOI-B | | GPU | Enraf Bi-phase Mark | 1200/2400 | |
| Whessoe | | WM 550 | 0-20 mA current loop | 150-2400 | |
| | | WM 660 | 0-20 mA current loop | 150-2400 | |
| | | | RS485 | 150-38400 | |

1. Configurable termination by hardware switch.

Table 4. Port Configuration Options

| Ports | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------------------------|------------|------------|------------|------------|------------|------------|-----------|-----------|
| Alternative 6+2 (standard) | Field Port | Field Port | Field Port | Field Port | Field Port | Field Port | Host Port | Host Port |
| Alternative 5+3 | Field Port | Field Port | Field Port | Field Port | Field Port | Host Port | Host Port | Host Port |
| Alternative 4+4 | Field Port | Field Port | Field Port | Field Port | Host Port | Host Port | Host Port | Host Port |

Table 5. Additional Interfaces

| Electrical interface | Description |
|-----------------------------------|--|
| Ethernet 1 (ETH 1) ⁽¹⁾ | Modbus TCP connection to host system. |
| Ethernet 2 (ETH 2) ⁽²⁾ | Connected to redundant system hub. |
| Ethernet 3 (ETH 3) | Used for service purposes only. |
| USB 2.0 ⁽³⁾ | USB memory stick for logging of diagnostic data (service purposes only). |
| SD ⁽³⁾ | SD card for logging of diagnostic data (service purposes only). |

- When connecting the system hub to the local LAN network, make sure the connection is secure to prevent unauthorized access.
- CAT 5 or 6 cable is recommended.
- FAT32 file system.

Figure 1. Typical Configuration of a Rosemount 2460 System Hub

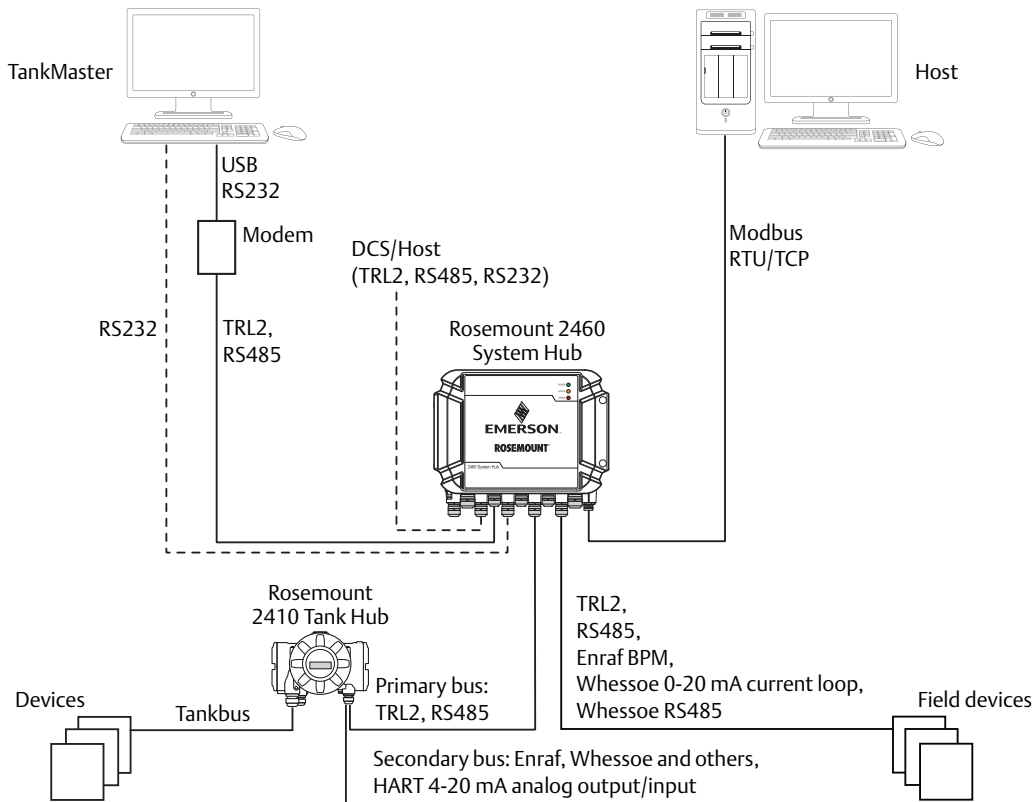
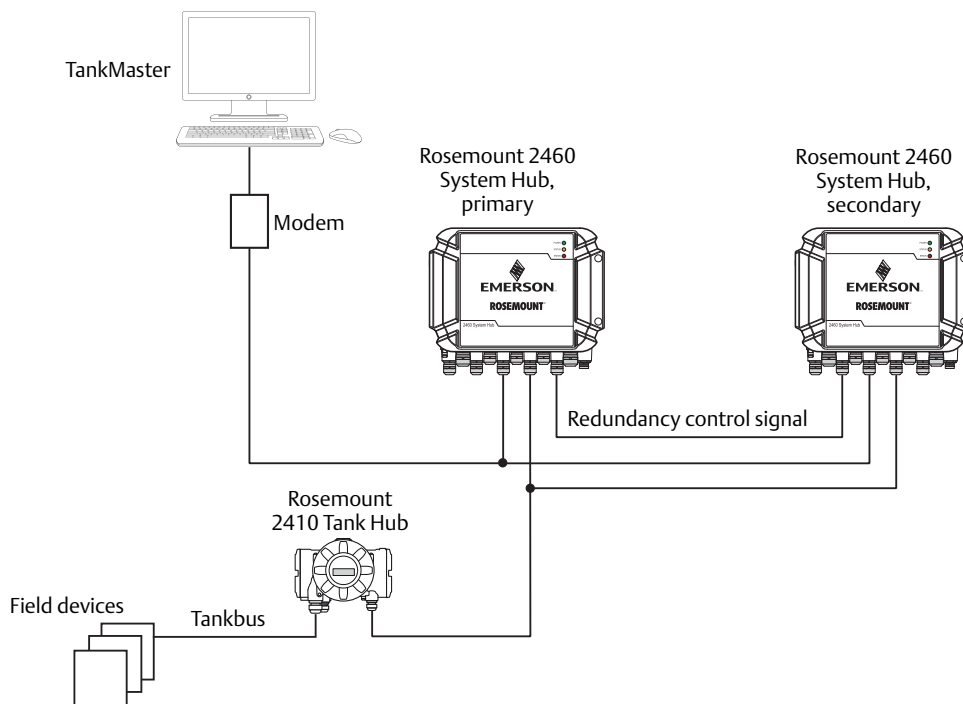


Figure 2. Typical Redundant Configuration



Electrical specifications

Power supply

24-48 VDC (-15%, +10%)

100-250 VAC (-15%, +10%), 50/60 Hz ($\pm 2\%$)

Power consumption

Maximum 20 W

Cable entries

Nine M20 x 1.5

Two M25 x 1.5

Electrical interface

See [Table 3](#) and [Table 5](#).

Cable size

Power: 0.75 to 2.1 mm² (18-14 AWG)

Bus: 0.5 to 2.5 mm² (20-14 AWG) depending on communication interface

Built-in mains fuses

T1.6 A

Backup battery

3V CR 1632 lithium

Mechanical specifications

Housing material

Polyurethane-covered die-cast aluminum

Installation

Wall mounted by four screws. For further information see “[Dimensional Drawings](#)” on page 13.

Weight

7 kg (15 lbs)

Environmental specifications

Temperature limits

Ambient temperature

-40 to 70 °C (-40 to 158 °F)

Storage temperature

-40 to 80 °C (-40 to 176 °F)

Humidity limits

0-100% relative humidity

Ingress protection

IP 65

Metrology sealing possibility

Yes

Write protection switch

Yes

Product Certifications

Rev 1.0

European Directive Information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at EmersonProcess.com/Rosemount.

Ordinary location certification

As standard, the transmitter has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by a nationally recognized test laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Certificate: 2735155

Standards: CAN/CSA-C22.2 No. 61010-1-12;
UL Std. No. 61010-1 (3rd Edition)

Markings: Rated 24-48V dc, 100-250V ac, 20W, 50/60 Hz;
Ambient rated -40 to +70 °C

Telecommunication compliance

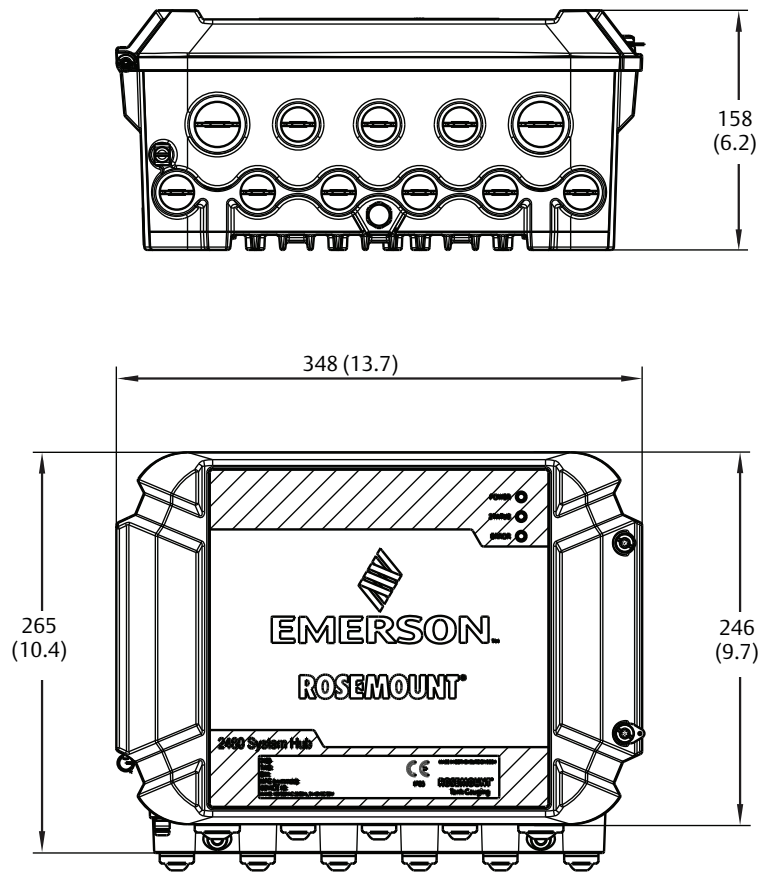
FCC and IC

This device complies with Part 15 of the FCC Rules.

Standards: FCC 47 CFR Part 15B, 15.107 Conducted emission class A, 15.109 Radiated Emission class A

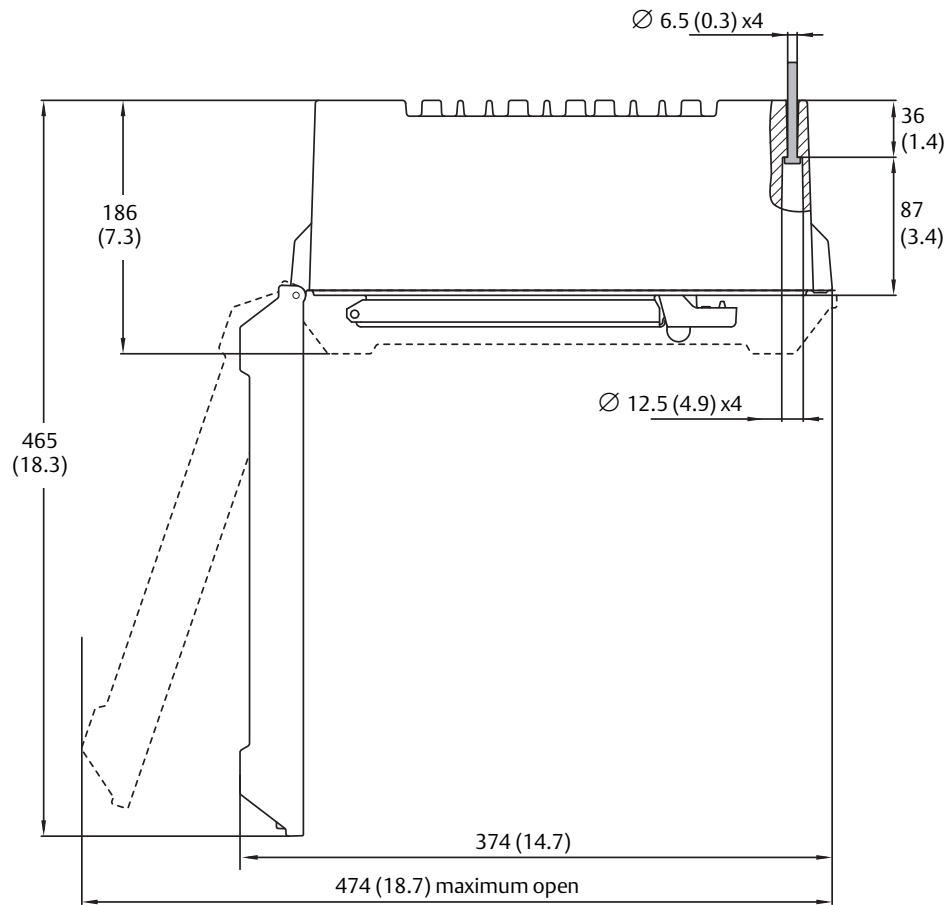
Dimensional Drawings

Figure 3. Rosemount 2460 System Hub



Dimensions are in millimeters (inches).

Figure 4. Rosemount 2460 System Hub



Dimensions are in millimeters (inches).

Global Headquarters and Europe Regional Office Tank Gauging

Emerson Process Management

Box 150

(Visiting address: Layoutvägen 1)

SE-435 23 Mölnlycke

+46 31 337 00 00

+46 31 25 30 22

sales.rtg@emerson.com

North America Regional Office Tank Gauging

Emerson Process Management

6005 Rogerdale Road

Mail Stop NC 136

Houston, TX 77072, USA

+1 281 988 4000 or +1 800 722 2865

sales.rtg.hou@emerson.com

Latin America Regional Office

Emerson Process Management

1300 Concord Terrace, Suite 400

Sunrise, FL 33323, USA

+1 954 846 5030

+1 954 846 5121

RMTLAContactUS@emerson.com

Asia Pacific Regional Office

Emerson Process Management Asia Pacific Pte Ltd

1 Pandan Crescent

Singapore 128461

+65 6777 8211

+65 6777 0947

Specialist-OneLevel.RMT-AP@emerson.com

Middle East and Africa Regional Office

Emerson Process Management

Emerson FZE

P.O. Box 17033

Jebel Ali Free Zone - South 2

Dubai, United Arab Emirates

+971 4 8118100

+971 4 8865465

rtgmea.sales@emerson.com



Linkedin.com/company/Emerson-Process-Management



Twitter.com/Rosemount_News



Facebook.com/Rosemount



Youtube.com/user/RosemountMeasurement



Google.com/+RosemountMeasurement

Standard Terms and Conditions of Sale can be found at:

www.Emerson.com/en-us/pages/Terms-of-Use.aspx

The Emerson logo is a trademark and service mark of Emerson Electric Co.

TankMaster, TankRadar, Emerson, Rosemount and Rosemount logotype are trademarks of Emerson Process Management.

Enraf and Honeywell are registered trademarks of Honeywell International Inc.

Modbus is a registered trademark of Modicon Inc.

All other marks are the property of their respective owners.

© 2016 Emerson Process Management. All rights reserved.